

Draft

Building Radiation Survey Data Initial Evaluation Report

**Former Hunters Point Naval Shipyard
San Francisco, California**

**Department of the Navy
Naval Facilities Engineering Command
Base Realignment and Closure
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Executive Summary

This report describes the initial efforts to evaluate data from building radiation surveys performed by Tetra Tech EC, Inc. (TtEC) at the former Hunters Point Naval Shipyard (HPNS) from 2008 to 2016. The intent of the data evaluation is not to provide a complete review of the building radiation surveys, nor identify all instances of data manipulation and/or falsification. While the Navy selected four methods for the initial survey evaluation, additional inconsistencies and anomalies were noted but not investigated fully because the initial evaluation provided ample evidence that the building radiation surveys had been manipulated and could not be used to support a recommendation for unrestricted radiological release. The data evaluation performed by the Department of the Navy (Navy) determined that former worker allegations describing improper data collection and manipulation could be verified by developing and applying analytical methods on the TtEC -provided data and TtEC-submitted survey reports. Evidence of data manipulation and/or falsification was found in the building radiation surveys. It is concluded that some surveys have been falsified and additional data will need to be collected to support a recommendation for unrestricted radiological release at HPNS radiologically-impacted buildings.

Allegations regarding HPNS building survey methods and data are grouped into categories of scan speed, detector movement, and falsification. Four methods were developed to evaluate Navy-provided electronic survey data from 28 buildings and 816 survey units at HPNS. The Scan Speed and Coverage method calculated the average scan speed and the minimum area covered during conduct of alpha-beta radiation scanning. The method was applied to four survey units for verification, and the resulting rapid scan speeds (or low scan coverage) are expected to be consistent in nearly all survey units. The Data Distribution Comparison method was used as an indicator of whether the detectors were in motion or simply left in one place. The method was used on two data sets, and based on the inconclusive results, the method is not recommended to assess detector movement.

Two methods were developed to assess data falsification and manipulation. The first method, Data Duplication Query, used a query to identify 40 duplicated data strings in electronic data, ranging from 4 to 473 values in length. These duplicated data strings occurred in 15 of the 28 buildings, in 49 of the 816 survey units (6 percent), and in 10,075 of the 567,517 data points (3 percent) evaluated. In addition to data duplication, additional instances and types of data manipulation were identified. The second method, Sum of Statics Assessment, was developed to identify duplications in non-sequential sets of data. While the method was validated, no instances of duplicated results were identified by this method.

The methods developed and applied during the data evaluation described in this report represent the Navy's initial effort to demonstrate the ability to assess allegations of data manipulation, and to assist in making decisions on pending dispositions of the buildings at HPNS. The allegations regarding detector speed were successfully assessed using the Scan Speed and Coverage method. The detector movement allegation was evaluated using the Data Distribution Comparison method and determined to be inconclusive. The allegation of data falsification was supported by the Data Duplication Query method, which identified various means of data duplication and potential manipulation rather than the replacement of individual survey results. The Sum of Statics Assessment method was validated without identifying further instances of duplication. The overall conclusion of this initial building radiation survey evaluation is that the surveys have been falsified and cannot be used to support a recommendation for unrestricted radiological release for HPNS radiologically-impacted buildings.

Summary

This report documents the efforts to develop and validate methodologies to evaluate building survey data at HPNS with respect to allegations regarding scan speed, detector movement, and falsification of data. The developed methods include the following:

- Scan Speed and Coverage Method (Section 4)
- Data Distribution Comparison Method (Section 5)
- Data Duplication Query Method (Section 6)
- Sum of Statics Assessment Method (Section 7)

These methods were applied to Navy-provided electronic survey data from 28 buildings and 816 survey units at HPNS. The Scan Speed and Coverage method calculated the average scan speed and the minimum area covered during conduct of alpha-beta scanning. The method was applied to four survey units for verification, but the resulting rapid scan speeds (or low scan coverage) is expected to be found in nearly all survey units. The Data Distribution Comparison method was tested to determine whether data from different surveys of the same area could indicate whether the detectors were in motion in either survey. The method was used on two data sets, and based on the inconclusive results, the method is not currently recommended to assess detector movement. Two methods were developed to assess data falsification and manipulation. The first method, the Data Duplication Query, was used to identify 40 duplicated data strings in electronic data. These duplicated data strings occurred in 15 of the 28 buildings, in 49 of the 816 survey units (6 percent) and in 10,075 of the 567,517 data points (3 percent) evaluated. In addition to data duplication, additional instances and types of data manipulation were identified and presented. No instances of duplicated results were identified by additional validated methods.

The methods developed and applied during the data evaluation described in this report represent the Navy's initial effort to demonstrate the ability to assess allegations of data manipulation, and to assist in making decisions on pending dispositions of buildings at HPNS. The allegations regarding detector speed were successfully assessed using the Scan Speed and Coverage method. The detector movement allegation requires further evaluation using more or larger data sets to validate the developed Data Distribution Comparison method. The allegation of data falsification was supported by the Data Duplication Query method, which identified various means of data duplication and potential manipulation rather than the replacement of individual survey results. Because some types of data manipulation are difficult or impossible to identify, this report cannot verify that additional portions of the database have not been manipulated. The overall conclusion of this initial building radiation survey evaluation is that evidence of data manipulation and/or falsification was found in the building radiation surveys. It is concluded that some surveys have been falsified and additional data will need to be collected to support a recommendation for unrestricted radiological release at HPNS radiologically-impacted buildings.